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***Sialia arctica*.** — Common migrant; arrived March 27 in considerable numbers. Breeds, but very sparingly, near the Fort; higher in the mountains it is common, and there replaces *mexicana*.

***Tringa minutilla*.** — This species was accidentally omitted from the first instalment of the present paper. I took a single specimen July 10.

NOTES ON THE HABITS, NESTS AND EGGS OF THE GENUS *GLAUCIDIUM* BOIE.

BY CAPT. CHAS. E. BENDIRE.

THE GENUS *Glaucidium* was instituted by Boie in 1826. Only two species and one additional subspecies are found within the limits of the United States, as far as is known at present. These are

Glaucidium gnoma Wagler, the PYGMY OWL.

Glaucidium gnoma californicum Sclater, the CALIFORNIA PYGMY OWL.

Glaucidium phalænoides (Daud.), the FERRUGINOUS PYGMY OWL.

The true *G. gnoma* is found in Mexico, throughout the middle province of the United States, north to Oregon (Fort Klamath and Camp Harney) and Colorado. *G. gnoma californicum* is restricted to the Pacific Coast proper, between San Francisco Bay and British Columbia, inclusive. These little Owls, I believe, are resident throughout the year wherever found.

The general habits of the Pygmy Owl are by this time pretty well known, and there remains little for me to add to their life history, that is really new. It is a well-established fact, that it is quite diurnal, and hunts its prey, to a great extent at least, during the daytime, its food consisting not alone of grasshoppers and other insects, as some of the earlier naturalists surmised, but also of birds and the smaller rodents, some of the latter considerably heavier than itself.

I presume that it is not at all uncommon throughout the entire mountainous and timbered portions of the West; but from its small size and retiring habits, generally being perched in dense evergreen trees, it is not often noticed by the naturalist, and usually only by accident. I have taken it personally in the Blue Mountains in Washington Territory, and in several places in Oregon, but have never met with more than one at a time. My specimens were, with but a single exception, all found in or near the pine timber. While hunting Sage Fowl (*Centrocercus urophasianus*) on the morning of Feb. 5, 1875, in the vicinity of Camp Harney, Oregon, I shot a female Pygmy Owl at least five miles from the nearest timber. It was perched on a large boulder, lying at the foot of a basaltic cliff from which it had broken off, and allowed me to approach quite closely. It had just about finished its breakfast, furnished by a Western Tree Sparrow (*Spizella monticola ochracea*), as indicated by the feathers scattered about and on the rock. It was in prime condition and exceedingly fat.

The first of these little Owls, coming under my observation, was shot by Sergt. Smith, who used frequently to go gunning with me. On the morning of Dec. 14, 1874, we were out hunting Sooty Grouse (*Dendragapus obscurus fuliginosus*) along the southern slopes and amongst the foothills of the Blue Mountains, a few miles north of Camp Harney, and had been quite successful. The Sergeant was walking along the edge of a mesa (tableland), while I was about a hundred yards below him, hunting amongst some serviceberry bushes growing about half way up the slope of the hill, and in which Grouse were usually found feeding at that time of the year. Hearing the Sergeant fire (he could not be seen from where I was at the time), I called to him and asked what he had shot. His reply seemed at the instant rather strange to me. It was "Captain, I shot a baby Owl, riding on a rat; I have got them." Had I not known the Sergeant to be a strictly sober man, not at all addicted to drinking, I should have readily agreed with him, that he had them, and laid it to over indulgence in something stronger than water, on that particular morning; but when I climbed up to where he was standing, the matter was fully explained.

It appears that a tall old pine tree had been uprooted years ago by some of the heavy windstorms that occasionally sweep

over that region, and the roots of it were lying partly under a younger and bushy tree of the same species, that was taking the place of the older one in the course of nature. The massive trunk of the old tree was free from limbs for about forty feet, and was slowly but surely decaying. A large-sized pocket gopher, who perhaps found a congenial home amongst the roots of the old tree, on hearing the noise the Sergeant made in his approach, had climbed up on to the trunk of the tree, possibly to get a good view of the intruder and to warn the balance of his family, when, quick as a flash, a little Pygmy Owl, that had been securely hidden among the branches of the growing pine, dropped down with unerring aim on its victim and fastened its sharp little talons securely into the astonished gopher's back. Sergeant Smith's attention was drawn to the performance by a squeak from the gopher which, in trying to escape, ran along on top of the fallen pine almost its entire length, making rather slow progress however, hampered by the Owl as it was, when the Sergeant fired, killing both. During this time, nearly a couple of minutes, the Owl sat upright on the gopher's back, never letting go its hold an instant, twisting its head nearly off the body in trying to keep an eye on the Sergeant, who was rapidly approaching, but apparently showing no uneasiness whatever. He told me that the whole thing was done in such a business-like manner, that it was evidently not the first ride of the kind this little Owl had so taken. It held on to its prey even in death. I published a short account of this occurrence at the time, in the Proceedings of the Boston Society of Natural History, Vol. XVIII, Oct. 6, 1875. Both specimens are in the National Museum Collection.

I also met with the Pygmy Owl on several occasions at Fort Klamath, Oregon. I remember quite distinctly seeing one (presumably the same individual) several times at various hours of the day sitting patiently, but wide awake, on a single long and slender willow branch overhanging Fort Creek, but a little distance from the Post. I refrained from shooting it, as I suspected it nested in the vicinity, and it would also have been rather difficult to secure. I can't say so positively, but think it used that particular perch for no other purpose than to catch frogs. The willow overhung a marshy, reed-covered spot, where the water was rather shallow, and which seemed to be a

favorite resort for numbers of these batrachians. Small birds, of which there were numbers about in the immediate vicinity in the willow thickets bordering the stream, did not seem to resent the presence of the little Owl, and paid no attention whatever to it.

Its call notes may often be heard during the early spring months while mating, and usually shortly after sundown. Its love notes are by no means unmusical. They resemble to a certain degree the cooing of the Mourning Dove (*Zenaidura macroura*), like 'coohuh, coohuh,' softly uttered, and a number of times repeated. Although I have not positively seen this bird while in the act of calling its mate, I am quite certain that the notes emanated from this little Owl and no other. I am familiar with the notes of the Acadian and Kennicott's Owls (*Nyctala acadica* and *Megascops asio kennicottii*), the only other of the small Owls at all likely to be found there, but their notes are different, and they were not met by me while stationed at Fort Klamath, Oregon.

Mr. Henshaw found the Pygmy Owls quite numerous in the southern Rocky Mountains, and states that they are rather sociable in disposition, especially during the fall months. He says that he has imitated their call and readily lured them up close enough to be interviewed. (See Auk, Vol. III, Jan., 1886, p. 79.) I am inclined to think that they are much more common there than further north.

In regard to the nesting habits of the Pygmy Owl, but very little is yet known, and as far as I am aware, but two nests, one containing eggs, the other young, have been taken.

Although mention is made in Baird, Brewer and Ridgway's 'History of North American Birds,' Vol. III, p. 85, that this Owl, according to J. K. Lord, lays two small eggs, white in color, early in May, I think the credit of the discovery of the nest and eggs of this species really belongs to Mr. George H. Ready, of Santa Cruz, Cal., who on June 8, 1876, found a nest containing three eggs, one of which was accidentally broken, in a deserted Woodpecker's burrow in an old isolated poplar tree, growing on the banks of the San Lorenzo River near Santa Cruz. The burrow was seventy-five feet from the ground. A short account of this find was published by me in the Proceedings of the Boston Society of Natural History, Vol. XIX, March

21, 1879, p. 132, and a somewhat fuller description of the same, by W. C. Cooper, can be found in the Bulletin of the Nuttall Ornithological Club, Vol. IV, April, 1879, p. 86.

The two eggs, of which drawings only are before me, are, according to these, ovate in shape, dull white in color, with a scarcely perceptible yellowish tinge. The surface is said to be quite smooth, and to have the appearance of having been punctured with a fine point over the whole egg. Judging from the drawings they are decidedly pointed for Owl's eggs, and perhaps somewhat abnormal in this respect. Their size is given as $1.18 \times .90$ and $1.17 \times .87$ inches. According to the latest classification these eggs would be referable to *Glaucidium gnoma californicum*.

During one of my absences from Fort Klamath, on official business matters, one of my men found on June 10, 1883, a burrow occupied as a nest by the true *Glaucidium gnoma*, which at the time it was first discovered must have contained eggs. The nest was not disturbed till the day after my return to the Post, June 25, when he showed it to me. The nesting site used was an old deserted Woodpecker burrow, in a badly decayed but still living aspen tree. It was about twenty feet from the ground. The cavity was about eight inches deep and three and a half wide at the bottom. This tree, with two others of about the same size, stood right behind, and but a few feet from a target butt on the rifle range, which had been in daily use since May 1, target firing going on from three to four hours daily. All this shooting did not seem to disturb these birds, for the first egg must necessarily have been deposited some two or three weeks after the target practice season began, but the strangest thing is that the Owls were not discovered long before, as two men employed as markers were constantly behind the butt in question during the firing and directly facing the entrance hole of the burrow. When the nest was shown me I had it examined, and much to my disgust found it to contain, instead of the much coveted eggs, four young birds from a week to ten days old perhaps. I took these; two of them are now in the National Museum, the remaining two, in Mr. William Brewster's collection at Cambridge, Mass. The cavity was well filled with feathers of various kinds, and contained, besides the young, the female parent and a full grown Say's chipmunk (*Tamias lateralis*) that evidently had just been carried in, as

it was not touched yet. The cavity was almost entirely filled up by the contents mentioned.

Judging from these accounts, the only reliable ones I know of, it would appear that the Pygmy is one of the latest of the Owl tribe to begin nidification, and it is not at all probable that more than one brood is raised in a season, or that in both the instances mentioned the first set of eggs had been destroyed. The young Owlets, two of which I kept alive for several days, made a kind of chirping noise like a cricket. The number of eggs to a set is probably never more than four.

***Glaucidium phalænoides* Daud.** FERRUGINOUS PYGMY OWL. — This widely distributed species was first described by Prince Max z. Wied in 1820. It inhabits the whole of tropical America (the West Indies excepted), and is found to the northward, along the southwestern border of the United States, occurring in southern Texas and Arizona. It was first added to our fauna by the writer, who took several in the heavy mesquite thickets bordering Rillitto Creek, near the present site of Camp Lowell, in the vicinity of Tucson, Arizona, in 1872. The first specimen was taken Jan. 24, 1872, showing that it is a resident throughout the year; other specimens were obtained during the following spring and summer. Unfortunately I was not an adept in taxidermy then; the skins made by me in those days looked as if they had passed through the jaws of a hungry coyote, and they were only useful in determining species. Like *G. gnoma*, this little Owl is quite diurnal in its habits. Its call, according to my own notes, is 'chu, chu, chu,' a number of times repeated, and is most frequently heard in the evening. According to Mr. F. Stephens, its note is a loud 'cuck' repeated several times as rapidly as twice each second. He further states that at each utterance the bird jerked his tail and threw back his head. Occasionally a low chuck, audible for only a short distance, replaced the usual call. Mr. Stephens's notes, come perhaps nearer the mark than my own; I know him to be an exceedingly careful, conscientious, and reliable observer. According to Prince Max z. Wied in Burmeister's 'Thiere Brasiliens,' Vol. II, 1856, p. 142, its call is said to be 'keck, keck, keck.'

The best account of the life history of this little Owl, is found in the 'Journal für Ornithologie,' Vol. XVII, 1869, pp. 244, 245,

under 'Notes on the Natural History of the Birds of Brazil,' by Carl Euler.

According to this authority, small as the Ferruginous Pygmy Owl is, it has been known to carry off young chickens, and he was informed by the natives that it even attacked Jacú-hens (*Penelope*), a bird of greater size than domestic fowls. It was stated to him that the little Owl fastened itself under the wings of the latter, gradually tearing it to pieces, and wearing it out and eventually killing it. I am aware, from personal observations, that some of our small Owls are the peer, as far as courage is concerned, of the noblest Falcon ever hatched, but I should not quite care to father that story. Carl Euler says further that in captivity, when fed on birds, it always carefully removed all the larger feathers from the carcass, before beginning its meal. Also that it was not at all afraid of light, and that he met with it several times during bright sunshiny days, sitting on perfectly bare and leafless trees. He gives its call note as '*khiu, khiu.*' Apparently none of us mentioned here, agree on the call note of this Owl, and I leave it to the reader to take his choice.

Euler surmises that it rears two broods a season, one in October, the other in December. He met once in March, a family of four, two adult and two young, sitting close together on a limb of a tree, waiting, as he says, for twilight. The nest is said to be made in hollow trees; no mention is made of the eggs having been found, however, and I cannot find any description of them in any of the works accessible to me.

A nest containing two fully fledged young, found by me in an old mesquite tree in the spring of 1872, in a chaparral thicket near Camp Lowell, and referred to by me at the time as being that of *Micrathene whitneyi*, may possibly, and probably, have been one of this little Owl, as the Elf Owl seems to confine itself in its nesting sites to burrows in giant cactus (*Cereus giganteus* ?), so far as known.

An additional new subspecies of *Glaucidium* has recently been described in 'The Auk,' Vol. V, April, 1888, p. 136, by William Brewster, under the name of *Glaucidium gnoma hoskinsii* Brewster, Hoskins' Pygmy Owl, from the Sierra de la Laguna, Lower California, and which properly also belongs to our fauna. Nothing whatever is known respecting its habits as yet.